

REMARKS

Claims 1 and 4-18 are pending in the present patent application. Claims 1, 4-6, 10-13, 15, and 18 stand rejected; and claims 7-9, 14, 16, and 17 stand objected to. By this amendment, claims 7 and 16 are amended. This application continues to include claims 1 and 4-18.

The Examiner has objected to claims 7-9, 14, 16, and 17 as being dependent upon a rejected base claim, but has indicated that claims 7-9, 14, 16, and 17 contain allowable subject matter, and would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants thank the Examiner for the indication of allowability regarding claims 7-9, 14, 16, and 17.

In view of Applicants' response to the rejection of claims 1, 4-6, 10-13, 15, and 18, set forth below, Applicants respectfully request that the objection to claims 7-9, 14, 16, and 17 be withdrawn.

Applicants have amended claims 7 and 16 to correct a typographical error.

Claims 1, 4-6, 10-13, 15, and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kosaka, et al., U.S. Patent No. 6,283,577 B1 (hereinafter, Kosaka) in view of Niimura, U.S. Patent Application Publication No. 2003/0214659 A1 (hereinafter, Niimura). Applicants respectfully request reconsideration of the rejection of claims 1, 4-6, 10-13, 15, and 18 in view of the following.

Kosaka is directed to a method of flushing a recording head of an ink jet recording apparatus which make it possible to carry out flushing without suspending a printing process (col. 1, lines 42-45). Kosaka discloses a printing region, and that ink droplets are ejected in

auxiliary regions outside the printing region, toward an ink absorber 8 (col. 6, lines 5-8, Fig. 6). Although flushing is carried out when the carriage 4 is moving in the auxiliary regions, flushing may also be carried out while the carriage is accelerated or decelerated in the respective acceleration/deceleration regions (col. 6, lines 20-24, Fig. 6).

Niimura is directed to a printer control program for recovering the nozzles of a printing apparatus (paragraph 1). Niimura discloses that if a preliminary-discharge command flag is set at step S411, control returns to step S404, after which control proceeds from step S405 to step S412, and that when image data is rendered, the preliminary discharge data generating module 105e is executed to thereby generate one raster of image data by combining the preliminary-discharge image data with the print image data (paragraph 47, Fig. 6). Where the preliminary discharge position is spaced away from the printing zone, NULL data for which ink is not discharged is added as dummy data between the print image data and the preliminary-discharge image data, whereby raster data is generated as overall data (paragraph 47, Fig. 6).

Applicants believe that claims 1, 4-6, 10-13, 15, and 18 patentably define Applicants' invention over Kosaka in view of Niimura, for at least the reasons set forth below.

Claim 1 is directed to a method of performing printhead maintenance firing in an ink jet printer that has a printhead carrier that carries an ink jet printhead, said ink jet printer having a waste ink receptacle. Claim 1 recites, among other things, controlling a firing of said printhead during said decelerating in accordance with maintenance data so that ink droplets ejected from said printhead during said decelerating are received by said waste ink receptacle,

and said maintenance data being appended to said print data for a particular printing swath pass for serialization to said printhead.

The Examiner acknowledges that Kosaka does not disclose, teach, or suggest maintenance data being appended to the print data for a particular printing swath pass for serialization to the printhead, as recited in claim 1. Rather, the Examiner relies on Niimura as assertedly teaching the maintenance data being appended to the print data for a particular printing swath pass for serialization to the printhead.

Although Niimura discloses that preliminary discharge data is combined with image data, Applicants respectfully submit that the Niimura preliminary data is not “appended” to the image data, that is, added after the end of the print data, as the term, “appended” requires, but rather, added to the front of the image data. For example, timing and maintenance data that are “appended” to the print data is depicted in Applicants’ Fig. 5, in which the timing data and maintenance data come after the end of the print data. However, Niimura Fig. 6 discloses that the preliminary discharge data is added at the beginning of the print data, prior to the actual printing zone and hence, is not “appended” to the print data.

Accordingly, Kosaka and Niimura, taken alone or in combination, do not disclose, teach, or suggest maintenance data being appended to the print data for a particular printing swath pass for serialization to the printhead, as recited in claim 1.

In addition, since the Niimura preliminary data is added to the front of the print data, the Niimura teaching would not provide for controlling a firing of said printhead during the decelerating in accordance with maintenance data so that ink droplets ejected from the printhead during the decelerating are received by the waste ink receptacle. Rather, since the

Niimura preliminary discharge data is at the front of the print data, it is clear that the preliminary discharge data is executed prior to the print data, which means that the Niimura preliminary discharge is performed prior to printing, e.g., during acceleration, in contrast to during deceleration, which is known in the art to take place after the printing is performed.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Kosaka and Niimura, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claim 1, and that the combination of Kosaka and Kanemura would not yield Applicants' invention of claim 1. Claim 1 is thus believed allowable in its present form.

Claims 4-6, and 10 are believed allowable due to their dependence, directly or indirectly, on otherwise allowable base claim 1. In addition, claims 4-6, and 10 further and patentably define the invention over the Kosaka and Niimura reference, taken alone or in combination.

For example, claim 4 is directed to the method of claim 1, further comprising the step of calculating the data length of said timing segment based on a length of said print data.

Kosaka does not disclose, teach, or suggest the subject matter of claim 4, nor does the Examiner assert as much. Rather, the Examiner relies on Niimura as assertedly disclosing the subject matter recited in claim 4, relying on the Niimura NULL data disclosed at paragraph 47, lines 7-12.

Applicants respectfully submit that although Niimura discloses that where the preliminary discharge position is spaced away from the printing zone, NULL data for which ink is not discharged is added as dummy data between the print image data and the preliminary-discharge image data (paragraph 47), Niimura does not disclose, teach, or suggest

how the length of the NULL data is determined, much less that it is calculated based on the length of the print data, as recited in claim 4.

Accordingly, claim 4 is believed allowable in its own right.

Claim 10 is directed to the method of claim 1, said waste ink receptacle being positioned at a predetermined location outside a print zone of said ink jet printer, and positioned in relation to an edge of a sheet of print media.

Kosaka does not disclose, teach, or suggest the waste ink receptacle being positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media, nor does the Examiner assert as much. Rather, the Examiner relies on Niimura as assertedly disclosing the subject matter of claim 10.

In contrast to the waste ink receptacle being positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media, Niimura discloses that where the preliminary discharge position is spaced away from the printing zone, NULL data for which ink is not discharged is added as dummy data between the print image data and the preliminary-discharge image data (paragraph 47).

However, Niimura does not disclose, teach, or suggest any particulars about the spacing of the preliminary discharge position, much less that it is a waste ink receptacle being positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media. For example, Niimura does not disclose, teach, or suggest a predetermined location for the preliminary discharge position, or that it is in any manner positioned in relation to an edge of a sheet of print media.

Accordingly, claim 10 is believed allowable in its own right.

Claim 11 is directed to a method of performing printhead maintenance firing in an ink jet printer that has a printhead carrier that carries an ink jet printhead, said ink jet printer having a waste ink receptacle. Claim 11 recites, in part, appending said timing segment and said maintenance segment to said print data segments.

Applicants respectfully submit that Kosaka and Niimura, taken alone or in combination, do not disclose, teach, or suggest appending a timing segment and a maintenance segment to print data segments for substantially the same reasons as set forth above with respect to claim 1.

In addition, claim 11 recites receiving print data in a form of print data segments. However, neither Kosaka nor Niimura disclose, teach, or suggest receiving print data in the form of print data segments. Rather, neither of Kosaka and Niimura disclose, teach, or suggest the nature of print data, much less that the print data is in the form of print data segments.

Accordingly, Kosaka and Niimura, taken alone or in combination, do not disclose, teach, or suggest receiving print data in a form of print data segments, as recited in claim 11.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Kosaka and Niimura, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claim 11, and that the combination of Kosaka and Kanemura would not yield Applicants' invention of claim 11. Claim 11 is thus believed allowable in its present form.

Claims 12, 13, 15, and 18 are believed allowable due to their dependence, directly or indirectly, on otherwise allowable base claim 11. In addition, claims 12, 13, 15, and 18

further and patentably define the invention over the Kosaka and Niimura references, taken alone or in combination.

For example, claim 12 is directed to the method of claim 11, said timing segment being generated by the step of calculating a data length of said timing segment based on a length of said print data segments.

Claim 12 is believed allowable in its own right for substantially the same reasons as set forth above with respect to claim 4.

Claim 18 is directed to the method of claim 11, said waste ink receptacle being positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media.

Claim 18 is believed allowable in its own right for substantially the same reasons as set forth above with respect to claim 10.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Kosaka and Niimura, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claims 1, 4-6, 10-13, 15, and 18, and that the combination of Kosaka and Niimura would not yield Applicants' invention of claims 1, 4-6, 10-13, 15, and 18.

For the foregoing reasons, Applicants submit that no combination of the cited references teaches, discloses or suggests the subject matter of the appended claims. The appended claims are therefore in condition for allowance, and Applicants respectfully request withdrawal of all rejections and allowance of the claims.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor and authorize that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.

Should any question concerning any of the foregoing arise, the Examiner is invited to telephone the undersigned at (317) 894-0801.

Respectfully submitted,

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